Public Meeting Regarding Funding for Cleaner, Safer School Buses

Sacramento, California

October 14, 2005

California Environmental Protection Agency
AIR RESOURCES BOARD

Agenda

- Staff presentation:
  - New Bus Funding
  - Retrofit Funding
  - Other Proposed Technical Updates
- Presentations by others
- Open discussion
- Closing remarks

Background
Public School Bus Fleets

- 743 Pre-1977 Buses
- Pre 1977: No Federal Safety standards
- Pre 1987: NOx and PM relatively uncontrolled
- Average mileage less than 14,000 miles per year

Children's Pollutant Exposure During Bus Commutes

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School Bus Self Pollution Study

- ARB Study:

  "Characterizing the Range of Children's Pollutant Exposure during School Bus Commutes"

- Significantly higher on-board concentration of diesel pollutants due to "self-pollution"

Health Risk

- Self pollution highest for older buses and with windows closed
- Lifetime cancer risk increase ~4% (~30 in a million lifetime risk)
- Increased risk of lower respiratory symptoms (6%) and daily hospitalizations for asthma (~1%)
- Children's exposures primarily from commute (not from loading, unloading, or waiting at bus stops)
- School bus still safer commute option than private vehicle

Lower Emission School Bus Program (Replacing Buses since 2001)

- Guidelines approved in 2000
  - Requires at least pre-1987 retirement
  - Encourages pre-1977 retirement
- Replaced 500 pre-1987 school buses
- Retrofit ~3,000 in-use diesel buses
- Some air districts have also replaced significant number of buses with local funds
- Guidelines will be updated this year

Budget Control Language and Available Funding

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Legislature Appropriated $25 Million for Cleaner, Safer School Buses

- $25 million for 2005 – 2006 fiscal year
  - $12.5 million for new bus purchases to replace pre-1977 school buses
  - $12.5 million to retrofit in-use diesel school buses
- "Provide equitable geographic distribution of the funds in manner that reduces the risk to children's health from diesel emissions from school buses"

Change from Historical Funding Allocation Requires Public Process

- Historically, new bus fund allocations on a per capita basis
- Legislation specifically targets pre-1977 buses
- Population of pre-1977 buses does not track people population

Funding Options

$12.5 Million New School Bus Funding Allocation Options

- Population based
- Percentage of pre-1977 buses
- Replacing oldest bus first

743 Pre-1977 School Buses in California

Air District	# Pre-1977 Buses
San Joaquin Valley	229
South Coast	105
Bay Area	100
Monterey Bay Unified	43
Antelope	29
Mendocino	23
Feather River	22
San Diego	18
Shasta	18
Ventura	16
Remaining Districts	140

School districts in Kern, Mariposa, Modoc, Northern Sonoma, San Luis Obispo air districts have not reported any pre-1977 school buses

Estimated Allocations for $12.5M in New School Bus Funding Based on the Replacing Oldest Bus First

100 Oldest Buses	
Air District	**No. of Oldest Buses**
San Joaquin Valley Unified	38
South Coast	30
Bay Area	6
Monterey Bay Unified	4
Feather River	4
Sacramento Metro	2
Amador	2
Mendocino	2
Shasta	2
Santa Barbara	1
North Coast Unified	1
Tehama	1
Total	100

- Number of buses replaced depends on replacement cost
- Highlighted districts have buses lower on the list which may not be replaced
- Requires specific buses to be replaced
- 100 oldest school buses in California range from 40 to 80 years old
  - One1925 MY
  - 23 1950 MY's
  - Remainder 1960 to 1967 MY's

Comparison of Funding Criteria for Largest Air Districts

Comparison of New Bus Funding Allocation Criteria for 5 Largest Air Districts			
Air Districts with Fund Allocations	**% of 100 Oldest Buses***	**% of Pre-1977 Bus Pop.**	**% of People Pop**
Self-Administered Program			
San Joaquin Valley Unified APCD	38%	31%	10%
South Coast AQMD	30%	14%	44%
Bay Area AQMD	6%	13%	19%
San Diego County APCD	N/A	2%	8%
Sacramento Metropolitan AQMD	2%	2%	4%

•Percentages for Oldest Bus First Method assumes funding will cover 100 buses. Actual number of buses purchased, and final percentages, dependent on bus prices.

More detailed charts available on our website:

http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm

Comparison of Funding Options for Largest Air Districts

Comparison of New Bus Funding Allocation Methods for 5 Largest Air Districts			
Air Districts with Fund Allocations	Oldest Bus Aprox. # of New Buses*	Pre-1977 Aprox. # of New Buses	People Pop. Aprox. # of New Buses
Self-Administered Program			
San Joaquin Valley Unified APCD	38	31	10
South Coast AQMD	30	14	44
Bay Area AQMD	6	13	19
San Diego County APCD	N/A	2	8
Sacramento Metropolitan AQMD	2	2	4

Numbers of buses preliminary. Based on $10K match and mix of diesel and CNG purchases

*Buses will be replaced oldest bus first until funds are exhausted. Actual number of buses purchased dependent on bus prices.

More detailed funding charts available on our website:
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Other Funding Requirements

Match Requirements Options

- School district match
  - $10,000 match for pre-1977 bus replacement Guideline requirement
    - $12.5M buys ~10% more buses with required match
    - Air district may cover required match with own funds
- Should air district who self administer contribute additional funds?
  - 10% match Guideline requirement first two years of program

Diesel/CNG Split for New Bus Funding

- Current Funding split of 2/3 alternative fueled and 1/3 diesel fueled statewide goal
  - Alternative fueled allows greater emissions benefits per bus
  - Diesel fueled allows more buses to be purchased
- 'Goal' provides guidance, but allows local air district flexibility
- Allows diesel purchases in areas without necessary alternative fuel refueling infrastructure

AB 923 Program

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AB 923 Clean Air Projects Funding Source

- Allows air districts to implement additional $2 motor vehicle registration surcharge for clean air projects
- DMV collects fees for districts
- 14 districts have adopted
- New school bus purchases an allowable fund allocation

AB 923 Fund Clean Air Projects

MV Fees

Scrap	Moyer
School Bus	Ag

Follow school bus guidelines

New School Bus Purchases

Retrofit Control

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$12.5 Allocated to Retrofit Devices on In-use Diesel School Buses

- Retrofit ~1,000 diesel buses
- Allocations to be made on per capita basis
- Air districts must spend previous retrofit funds before receiving new money
- Expect grant agreements to air districts by end of October

Retrofit Device Requirements Legislative Directives

- Level 3 verification from Board – reduce PM by at least 85%
- Apply to broadest range of year, make, and model of school bus diesel engine
- Operate across broadest range of operating school bus operation conditions and duty cycles
- Produce lowest possible NO_2 across the device

Ultra Low Sulfur Fuel Availability No Longer Impediment to Retrofit

- Ultra low sulfur diesel fuel will be available in all air districts.
  - Sept. 1, 2006 all retail sales of diesel fuel must meet 15 ppm maximum sulfur limit

Which Buses May Be Retrofit?

- Retrofit devices verified at level 3 PM reduction are available for 1994 to 2004 buses
  - Data logging recommended to verify bus duty cycle is appropriate for retrofit device
- Retrofit device must be verified at Level 3 at release of district's RFP
- Other retrofit devices are eligible if verified before RFPs released

Why Retrofit?
Studies Show Children's Exposure During Bus Commute Significant

- 1994 to 2006 school buses emit 10X the PM as school bus with DPF or new 2007 MY bus
- 1988 to 1990 MY buses emit 60X PM
- 1991 to 1993 MY school buses emit 25X PM
- Reduces PM emissions by 85% or more
- Benefit children's health issues by reducing:
  - Incidence and severity of asthma attacks, chronic bronchitis, coughing, wheezing and phlegm formation
  - Susceptibility to allergens
  - Cancer risk

CHP Safety Inspection After Retrofit

CHP vehicle inspection required prior to return to service

Title 13 Section 1272 (c)

Other Proposed Technical Updates

Lower-Emission School Bus Program Guidelines Technical Changes Update

- Update retrofit component of program
  - 85% control
  - CHP inspection after retrofit installation
- Add provision allowing use of AB 923 funds for CNG fuel tank replacement
- Add purchase requirements for 2007 and later MY school buses

Proposed Purchase Requirements for 2007 and Later MY School Buses

- Heavy-duty alternative fueled engine
  - NOx standard 0.5 g/bhp-hr
  - PM standard 0.01 g/bhp-hr
- Heavy-duty diesel fueled engine
  - NOx standard 1.2 g/bhp-hr
  - PM standard 0.01 g/bhp-hr

Program Milestones

- By October 31, 2005:
  - Retrofit funding grant agreements expected to air districts
- February 23 & 24, 2006:
  - ARB Board hearing to consider funding allocation methodology and Guidelines Update
- By March 31, 2006:
  - Expect new bus funding grant agreements issued to air districts and CEC

How to Contact Us

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- **To receive automatic e-mail notification when new information is available, sign-up for ARB's list serve at: http://www.arb.ca.gov/listserv/schoolbus.htm**